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1. Nov 5

Video Amplifier.

1. This amplifier was adjusted for maximum sensitivity under load condition (HP 420 Crystal detector connected to the input.

2. With the present sensitivity the amplifier overloads at -20 to -15 DB below 1 MW. This can be reduced by decreasing size of fixed resistor in the feedback loop or by replacing fixed resistor with potentiometer (in stock). The pot. serving to reduce amount of feedback with large signal input.

3 - Previous model had 56 K fixed resistor which functioned alright.

4. Current model has 68K fixed resistor in the feedback loop. (56K was tried)

Example Peak to Peak Volts

-25 DB = 1.4 Volts pulse

- 0 DB = 0.14 Volts pulse distorted with - oscillations appearing between pulses.

Freq = 5 KMC - PW = 10 μsec PRF = 1 K

Question shall I put the potentiometer in Amplifier

This document is part of an integrated file. If separated from the file it must be subjected to individual systematic review.

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31 OCT 55

Video Amplifier

I drain = 1.7 MA.

E VOLTS = 5.2 V (MALLORY TR114R MERCURY CELLS)

BATTERY LIFE AT 1.7MA = 100 HR + (BASED MALLORY CHART FOR 625 CELL WHICH IS THE BASIC CELL FOR TR114R BATTERY.

~~Sensitivity output of amplifier~~ 1 DBM

output of pulse stretcher = -47.5DBM

audible output (2K Ω HEADSET) = 36DBM

Reference Level = 0 DBM = 1MW

Controls of HP 618B ~~ERGGEN~~ SET AS FOLLOWS

Pulse rep. rate 1000 PPS

Pulse width 10 μsec.

Freq ---------- 5 KMC.

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Sensitivity as function of P.R.F. 1 NOV 55

Pulse Rep. Rate	Pulse Width in DBM 1 μsec	5 μsec	10 μsec	
200 P.P.S	34	40	-48.8	9
400 "	35	42	44.5	9
1 K "	37	44	-46	9
4 K "	38.5	45	48 - 49	10

Freq = 5 KMC
Reference Level = 1 MW = Ø DBM
Sensitivity taken as minimum detectable output with ocope.

3 Nov. 55.

HJ-8006 ? (NEMR Clerk) (instead INSL).
Transistor [illegible] (subminiature) (Electronic or IRE?)

Encapsulating material [Minnesota ? Minnis].

[1/2" x 2" x ?] 1/32" XXXP Brand [redacted] plate dimensions)

Antenna Test. (new topic)
2 Mc to 18.5 Kmc (5 Cyes). (Boonton?).

Present. [redacted] STAT

Tuned dipole test source
for field test

[G. K. Ros APR-6 Set]

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Sensitivities funct of PRF

PRF	1 μsec PW	5 μsec PW	10 μsec PW
200	-40	-39	-44
400	-38	42.5	-45
1 K	-36	43.5	-49.5
4 K	-35	44	-48

5Kmc

3/

5/

Sensitivity

PRF	PULSE WIDTH 1 μsec	5 μsec	10 μsec
200			
400			
1 K			
4 K			

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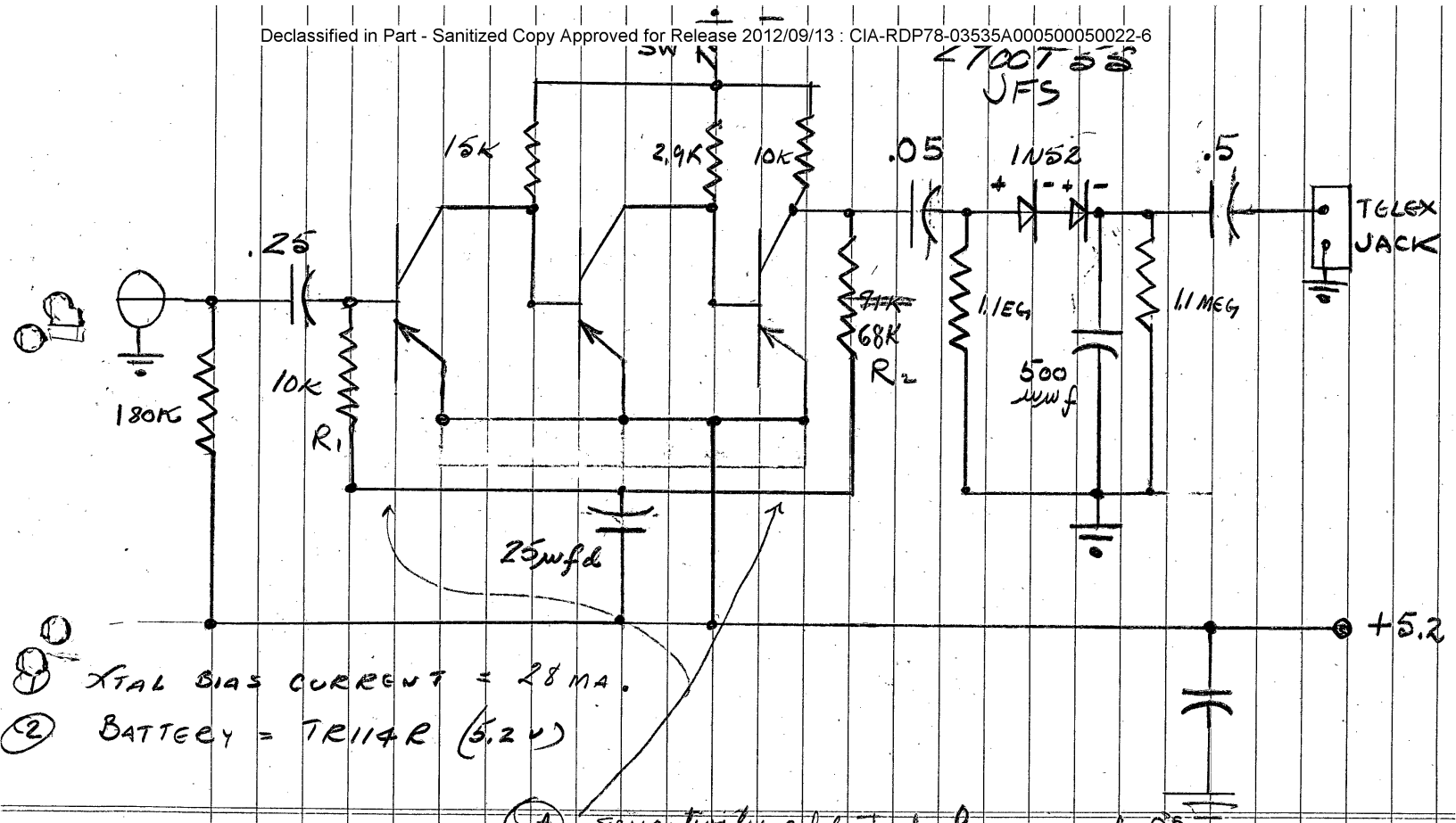

(3) XTAL BIAS CURRENT = 28 MA.

(2) BATTERY = TR114R (5.2 V)

(4.) Sensitivity affected by size of R_1
Sensitivity increased with size of R_2 to 100K THEN LEVELED OFF. with further increase in size of resistor R_2

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Video Amplifier

STAT

	REQUIRED	
Transistor SBT 5100	3	JOE HAD SOME IN DESK
Germainium Diodes IN52	2	" " " " "
Battery 4.5 Volt	1	TYPE TO USE HAS NOT BEEN SETTLED
Pots	0	NONE USED IN CORRENT MODEL
Connectors Input	1	1 PC MB 46825 (SOME QUESTION ON TYPE OF CONNECTORS EXISTS)
output	1	?
Capacitors .047	1	4 ACROVOX WAX IMPREGNATED ON HAND
.5	1	8 CORNELL DUBLIER TAN ON HAND
1.0	1	NONE ON HAND
.22	1	" " "
25.0	1	12 CORNELL DUBILIER TAN ON HAND
RESISTORS 125K	1	ALL RESISTORS ARE IN
10K	1	STOCK AT PRESENT TIME
33K	1	
15K	1	
8.2K	1	
3.9K	1	
1.0MEG	2	

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For Video Amplifier

15 Potentiometers Bourns Lab Sub-min
12 Trim potentiometer 25 K ohms 1/4 watt
size 1/4" x 5/16". Riverside Calif.

For Audio Oscillator

15 Potentiometers Chicago Telephone
Supply Corporation Elkhart, Indiana
Type CTS Series 65 3/4" diameter,
1/8" shaft, 1/2 watt, Taper CTS BD,
500 K ohms.

~~10~~ Potentiometers Chicago Telephone Supply
15 Corporation Type CTS Series 65
3/4" diameter 1/8" shaft 1/2 watt,
taper CTS A 500 K ohms.

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Video Amplifier

STAT

Transistors	[redacted] SBT 5100		(Joe has some in old desk)
Germanium Diodes	1N52		(Joe has some in desk)
Battery	4.5 volt	2 ma drain	(some in stock)
Pots	25K ¼ watt	(Bourns Lab Sub min. Trim pot ¼" x 5/16"	(not used in current model)
Connectors	Input	IPC MB 46825 ?	(some question on types of connectors exist)
	Output	?	
Capacitors one each	.5 MFD	8- Cornell Dubilier Taw 150volt on hand	
	1.0 MFD	7- Taw Steel Taw 1.5MFD on hand	
	.047 MFD	4- Aerovox wax impregnated Sub-min available	
	.22 MFD	None on hand	
	25 MFD	12 Cornell Dubilier Taw 150volt on hand	
Resistors one each except where noted	125 K	'all' resistors are available	
	10 K	in stock at present time. (½ watt size	
	33K		
	15K		
	8.2K		
	3.9K		
	1. MEG (2)		

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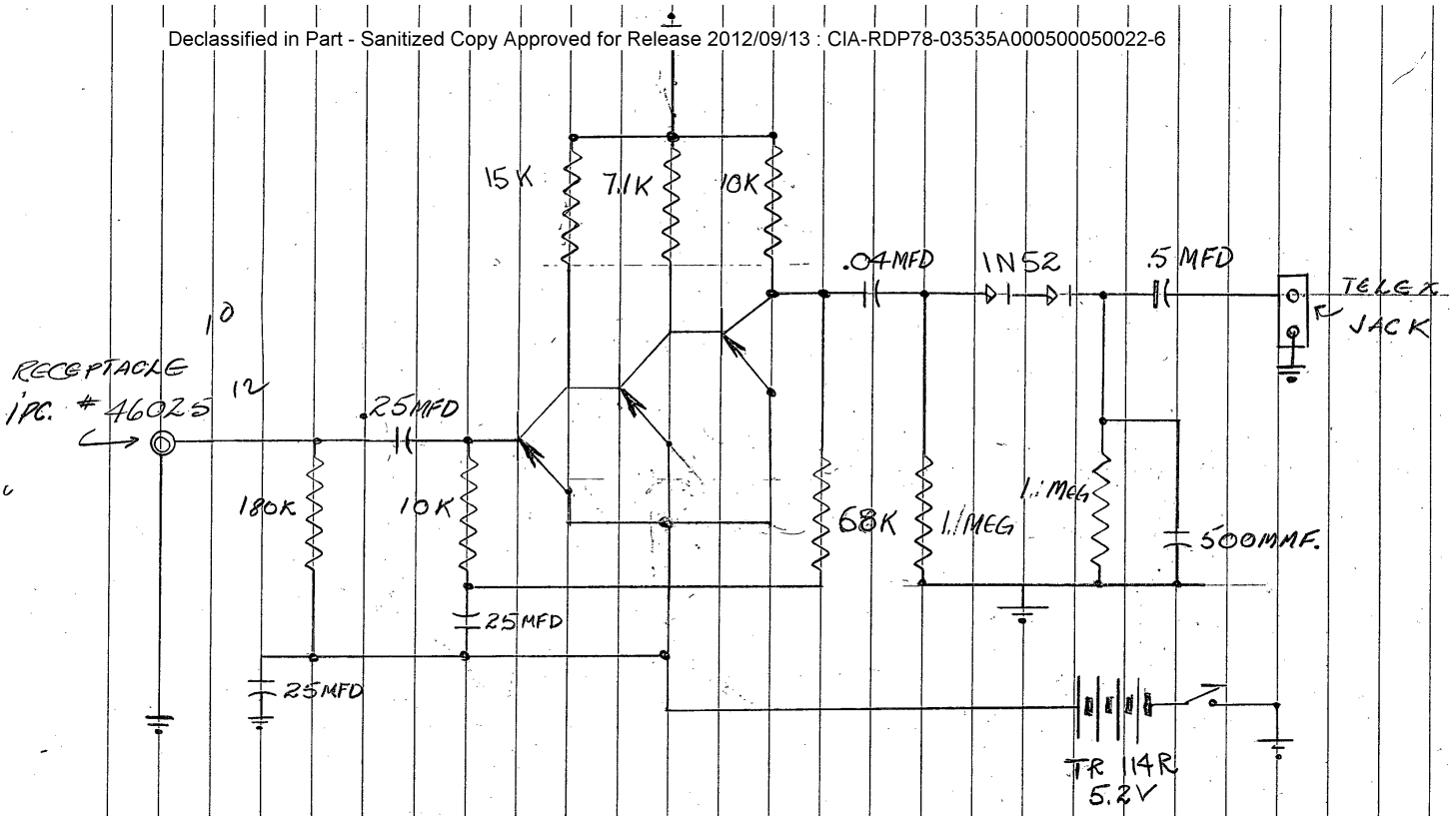

SBT's = SB100

VIDEO AMPLIFIER

XTAL BIAS = 28 μA

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Measurements: Power:

~~Current drain = 1.7 MA.~~

~~Battery Volts = 5.2 volts~~

Additional Information:

The size of the present engineering model is $4\frac{5}{8}$" x $1\frac{1}{2}$" x $\frac{7}{8}$".

In the final model the size of the video amplifier will be reduced to within the following tolerances:

Minimum dimensions $\frac{7}{8}$" x $1\frac{1}{2}$ x $2\frac{1}{4}$"

maximum dimensions $\frac{3}{4}$" x $1\frac{1}{2}$" x 2".

The present battery compartment is to be reconstructed so that access to the battery is possible without removing the case lid.

The investigation of the feasibility of putting the pulse stretcher immediately following the crystal detector is continuing and pending further investigations an analysis will be delayed.

Not used as such in memo to SPD.

Dell 11-22

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